

Regulations Plus Margin

"How can you guarantee anything a million years from now? I hear that a lot," says Bruce Robinson, program manager for the Yucca Mountain project at Los Alamos. Having dedicated 20 years of his life to studying and modeling Yucca Mountain, he finds it easy to spend a few minutes clarifying misconceptions.

"I explain that we don't make guarantees. We run lots of computer simulations and draw conclusions about what's likely to occur. I tell people that the decision to build or not build the repository needs to be made by comparing our scientific results with the EPA's requirements, which factor in human health risks and a myriad of other considerations. That's the way we move forward."

These days, Robinson manages the Los Alamos effort to assess the long-term performance of the repository. The results are reassuring.

"We can say with very high confidence that the dose will be well below the EPA's maximum limits," he says. "We run our simulations hundreds of times, varying the model parameters and calculating the dose each time. For the first 10,000 years, we calculate an average dose of 0.24 millirem per year, a small fraction of the allowable limit, and 95 out of 100 times, our calculations yield 0.67 millirem per year or less. The corresponding 95th percentile value for maximum dose over the entire million years is 9.1 millirem per year, which is also very small."

Informed by those results, DOE in June 2008 filed a license application with the Nuclear Regulatory Commission, asking for permission to build the repository. The document stating the department's case is over 8,600 pages long.

The application represents a major milestone in the project's 20-some years. The repository has faced strong opposition that has effectively halted its construction. (It was supposed to have begun accepting waste in 1998.) By filing for the license, DOE makes a de facto statement: We've done our job, we've done it well, and it's time to move forward.